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### Screening, characterization and potential use of plant growth promoting rhizobacteria in protection and production of organic tomato (*Lycopersicon esculentum*)

Laradj Zazou Khalida, Fizazi Anissa, Bensalem Nour El Houda and Pr. Abbouni Bouziane  
Dijlali Liabes University, Algeria

The search for microorganisms that enhance plant growth and protection is a promising integrated nutrient management system that is needed to maintain agricultural productivity and protect the environment from the continued use of chemical fertilizers. 30 bacterial strains were isolated from different rhizospheres collected from 3 sites in the region of Sidi Belabess, Algeria, and tested *in vitro* of their effect of plant growth promotion on the basis of their ability to produce some particular metabolites (salicylic acid, indole acetic acid and hydrogen cyanide), to solubilise phosphorus and to fix atmospheric nitrogen, in addition to their antifungal activity against the tomato pathogenic fungus *Fusarium oxysporum f.sp. adicis lycopersici*. The most powerful isolates were identified and used *in vivo* as inoculum to treat tomato seeds (*Lycopersicon esculentum*) and showed two benefic effects: protection against the attack of the phytopathogene and promotion of the growth of tomato plants. Thus, the use of this plant growth-promoting rhizobacteria (PGPR) as bioinoculants and biocontrol agents presents a great promise in agricultural crop production and protection.

k-zazou@hotmail.fr